



Acquisition Research:
Creating Synergy for Informed Change
3RD ANNUAL ACQUISITION RESEARCH SYMPOSIUM

Acoustic Rapid COTS Insertion (A-RCI)

A Case Study in Modular Open Systems Architecture

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Background Info: *Federated Systems*

EXAMPLES:

- The Internet
- Intranet: Network of computers and servers

BENEFITS:

- “Plug & Play”
- Ease of update for technical improvement or to avoid obsolescence
- Significant reduction in O&S cost – PDSS
- Invites competition
- Software reuse and software portability
- Use of common COTS processors



Navy Sonar Situation – “The *Crisis*”

- 1990s – Loss of Acoustic superiority
- Insufficient funding stream
- Seize the opportunity to try something new

“Different” Approach – *MOSA*

[Modularized Open System Architecture]

- *Annual* software spirals (APBs)
- *Bi-annual* COTS hardware insertions



Modularized Open System Architecture (MOSA) -- *Technical*

- Break *System* or *System of Systems* into functional components – hardware and software
- Control the key interfaces
- Embrace “best of breed” ***COTS processors***
- Make software decisions based on testing & ***demonstrated performance***
- ***Embedded recording*** of technical events



Modularized Open System Architecture (MOSA) -- *Business*

- Establish forum for communication
- Set “rules of engagement”
 - Technical parameters
 - Manner of review
 - Protection and sharing of technical information
 - Contractual processes and arrangements
 - *Competition* of best ideas and *best performance*
 - Teamwork – “*winning together*”
 - *Schedule discipline*



Changing the Culture

- Change *Prime Contractor* to ***Prime System Integrator***
- ***System Modularity***
- Systems Engineering Process
- Security of Information (intellectual property)
- Invitation to Small Business, Government Labs, Academia to compete – the ***innovators***
- ***Peer Review***
- New “***op tempo***” for development
- Decisions based ***demonstrated performance***



Leadership and Motivation

- Strong ***Leadership is essential*** to proactive change
 - ***Vision***
 - ***Motivating*** stakeholders
 - ***Empowering*** team members to act
 - Determination to stay the course
- Leadership provided the mandate, the “***top-cover***,” and the freedom to innovate



User Participation

- Dialog with user and *rapid response*
- User engagement dynamics
- User “*buy-in*”
- User internal participation
- User commitment
 - Stating needs
 - Testing emerging products
 - Allowing for implementation – hardware, software, training
- User community may be *pushed beyond their comfort zone* and be forced to change



Ramifications

- The question of **SCALABILITY**
- The meaning of **obsolescence**
- Comparison of **legacy** vs. *new systems*
- **Logistics**
- **Financial management**
- **JCIDS**
- **Testing**



Measurable Effects

- Technical Performance
 - Regained *technological superiority*
- Cost avoidance
 - Processor cost
 - Cost of Obsolescence
 - PDSS
- Logistics impact
 - Training
 - *MFOP*



Summary

- A-RCI exemplified **successful** spiral development
- Increased **responsiveness** to customer needs
- Applied private sector techniques, e.g., outsourcing and **rapid incremental improvement**
- Invited new players and **broad competition**
- Changed prime contractor relationship
- **Reduced** development **costs** while **increasing performance**
- Reduced O&S costs – **reduced** user **logistics** burden

